

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 6, line 7 with the following rewritten paragraph:

Fig. 2 is a schematic cross-sectional view showing an apparatus for measuring the Q value of the polymer electrolyte membrane in the membrane electrode assembly of the present invention;

Please replace the paragraph beginning at page 6, line 10 with the following rewritten paragraph:

Fig. 3 is a graph showing a discharge curve obtained as a result of measuring a current density in a predetermined voltage range, to determine the Q value of the polymer electrolyte membrane in the membrane electrode assembly of the present invention;

Please replace the paragraph bridging pages 8 and 9 with the following rewritten paragraph:

At least in the second membrane electrode assembly, the polymer electrolyte membrane should have a Q value (charge per a unit area) of 0.09-0.18 C/cm². When the Q value is less than 0.09 C/cm², it is impossible to obtain sufficient power-generating performance. On the other hand, when it exceeds 0.18 C/cm², the polymer electrolyte membrane has too low heat resistance, resulting in too high percent defective. The particularly preferable Q value of the polymer electrolyte membrane is 0.14-0.18 C/cm². Here, the Q value is the amount of electric charge per a unit area determined from a peak area of proton on an adsorption side in the scanning of voltage from -0.1 V to +0.7 V, in a cell in which the amount of platinum in the

catalytic layer of each electrode is 0.5 mg/cm^2 , and in which a polymer electrolyte membrane electrode assembly is surrounded by an aqueous sulfuric acid solution of pH 1 on one side and a nitrogen gas on the other side. The Q value may be regarded as an indicator of adhesion of the electrode to the polymer electrolyte membrane, and it has been found that with the polymer electrolyte membrane having the Q value of $0.09\text{-}0.18 \text{ C/cm}^2$, an excellent polymer electrolyte membrane electrode assembly is obtained.

Please replace paragraph beginning at page 10, line 10 with the following rewritten paragraph:

By scanning voltage from -0.1 V to $+0.7 \text{ V}$, the Q value (C/cm^2) can be determined from the proton peak area on the adsorption side. A typical measurement example is shown in Fig. 3. In the discharge curve shown in Fig. 3, the Q value is defined as the amount of electric charge per a unit area of the polymer electrolyte membrane in the membrane electrode assembly, indicating that the larger the Q value, the higher the adhesion of the electrode 100 to the polymer electrolyte membrane 101.

Please replace paragraph beginning at page 30, line 9 with the following rewritten paragraph:

Using an apparatus shown in Fig. 2, the Q value of the polymer electrolyte membrane in each membrane electrode assembly of a single cell in EXAMPLES 8-11 and COMPARATIVE EXAMPLES 4 and 5 was measured in a range from -0.1 V to $+0.7 \text{ V}$. The measurement results are shown in Table 2.

Please replace paragraph beginning at page 31, line 8 with the following rewritten paragraph:

As is clear from Table 2 and Fig. 11(a), when the Q value of the polymer electrolyte membrane in the membrane electrode assembly is less than 0.09 C/cm^2 , only low voltage is generated. On the other hand, when the Q value is more than 0.18 C/cm^2 , there is high percent defective. Accordingly, in the membrane electrode assembly having sulfonated polyetheretherketone used as a sulfonated hydrocarbon polymer, the polymer electrolyte membrane should have a Q value of $0.09\text{-}0.18 \text{ C/cm}^2$.